

**A Study on the Evaluation Model of Continuing Education under the
Classification of Educational Objectives——**

Take the evaluation of continuing education in meteorological departments as an
example

(Deng Yi,Gao XueHao,Zhao yanan,Qu Fang)

(China Meteorological Administration Training Center,Bei Jin,100081)

Abstract: This paper combs the historical development and theory of western education and training evaluation, and analyzes the historical context and main views of evaluation, including the analyses of Keshi four-step evaluation model, Phillips five-step evaluation model, target evaluation model of Taylor, process evaluation model of Cronbach and Stufflebeam, and value evaluation model of Screvane and Haus. According to the organization demands and job requirements of continuing education in meteorological department, it's with the characteristics of specific objectives and clear purposes. The purposes of evaluation serve the realization of continuing education goals. Therefore, continuing education evaluation in meteorological department has been researched from the perspective of educational objectives taxonomy. Firstly, exploring the definition of educational objectives taxonomy, and the analyses of existing educational objectives classification methods. Secondly, according to the characteristics of continuing education in meteorological department, from the perspective of educational objectives taxonomy, the continue education objectives in meteorological department have been decomposed from the objectives range, time and functions, target characteristics, level and use. Thirdly, this paper puts forward the quality - effect - benefit evaluation model of continuing education in meteorological department based on the classification of continuing education objectives in meteorological department, from the realized purposes and time of the evaluation, surrounding the goals of continuing education in meteorological department. Fourthly, according to the practice of continuing education evaluation in meteorological department, this paper has the description on the index and method system of quality evaluation, effect evaluation and benefit evaluation.

Keywords:continuing education,meteorological, targets, evaluation

The evaluation of meteorological education and training is a very important link in the work of meteorological education and training. It is an important way to improve the quality of meteorological education and training, the teaching methods of meteorological education and training and the efficiency of meteorological education and training. The meteorological department is the industry continuing education organization, whose purpose of the training is to meet the needs of the organization and job demand to promote the development of meteorological cause. The main task of evaluation is to find problems and improve teaching and improve the quality of training; the purpose is to verify whether the training rules of education are followed and whether the objectives of training are achieved and so on. Following the classification theory of educational objectives, the evaluation model of meteorological education and training is studied based on the characteristics of organization demand and post demand, and the clear goal of meteorological education and training.

I. Brief introduction of Modern Educational Evaluation Theory

Evaluation "generally refers to measuring the value of a person or thing". The concept of educational evaluation was first put forward by Professor Taylor of Ohio State University in 1930. It refers to the value judgment of the characters or things in the phenomenon of education. Education evaluation is generally defined as: On the basis of systematic, scientific and comprehensive collection, collation, processing and analysis of educational information, the process of judging the value of education is

aimed at promoting educational reform and improving the quality of education.

The current theory of education or training evaluation mainly includes Ceteris paribus 4 assessment model, Phillips five level evaluation model and Western education evaluation related theories. According to ASTD's study (American Association for training and development) in the 2009, the widely applied Kirkpatrick evaluation model was not fully used, and most organizations conducted it in the form of questionnaires I. Secondary assessment, III. The level 4 assessment is rarely carried out, and the evaluation work is essentially at the primary level of the assessment. The more representative one is western educational evaluation theory, which mainly includes "objective evaluation model" represented by Taylor, "process evaluation model" represented by Cronbach and Staveland, and "value evaluation model" represented by Skryven and House. Based on the elaboration of the concept of educational evaluation by foreign scholars, evaluation is a process carried out in the process of teaching. Pay attention to the effect of teaching, that is, the evaluation of the actual degree of educational objectives; we should pay attention to the benefits and results of educational activities and value judgment of educational results. From these three levels, the evaluation activities cover the whole process of education, and also include the process of exerting educational benefits besides educational activities. But in value evaluation, in addition to the unexpected effect of educational

behavior, it also includes the expected effects of educational behavior, which is consistent with the evaluation content of target evaluation mode.

Table 1 Western educational evaluation theories

Evaluation level	Evaluation objectives	Evaluation content	Defect
Target evaluation model	Verify the achievement of educational goals	Immediate effect	Lack of quality Control in Teaching process and unintended effect of Educational behavior
Process evaluation model	Realization of quality Control in Teaching process	Teaching quality	Unable to judge the expected and unexpected effects of educational behavior
Value evaluation model	Verify the value of educational activities	Effect and benefit	Lack of quality control in teaching process

To sum up, the relevant evaluation theory has some shortcomings. Since 2003, the Meteorological cadre training Institute of China Meteorological Administration has explored the evaluation of meteorological education and training based on Koch evaluation model and practice, and formed certain experience, which covers three levels: quality, effect and benefit. According to the specific characteristics of meteorological education and training objectives, the evaluation aims to serve the realization of meteorological education and training objectives. Therefore, the evaluation of meteorological education and training is studied from the perspective of educational objectives classification theory.

II. Reflections on improving the Evaluation of Meteorological Education and training based on the Classification Theory of Educational objectives

2.1 Definition of taxonomy of educational objectives

The purpose of education is of guiding significance to all educational work. The purpose of education in a broad sense is the expectation of the educated that is, the change or result of the educatee in various aspects of body and mind through education. The narrow purpose of education is the country's overall requirements for what kind of talents to cultivate. The aim of education is the fundamental guiding principle followed by educational activities. The realization of educational aims contains multi-level goals and is the measurement standard of educational activities. According to the standards, the direction and quality of educational activities can be judged, including the gain and loss of educational process, the level of quality, the degree of achievement of goals, and so on. Therefore, based on the classification theory of educational objectives, the structure of educational evaluation is rigorous, and the evaluation of whether education achieves the goal; evaluation is easier to operate and has clear basis and standard; it is helpful to understand clearly the consistent relationship between the knowledge hidden in the goal and the cognitive process; easier to deal with "teaching and evaluation issues".

From the perspective of the classification theory of educational objectives, the hierarchical structure of educational objectives includes educational objectives, training goals and teaching objectives. The aim of education is the general requirement that all kinds of schools must follow, and the training goal is determined by the specific social field and the needs of the society; They also change at the level of the school in which they are educated. In order to meet the learning needs of the educatees in various industries and levels, there are all kinds of schools at all levels. The purpose of education is for all educatees and the goal of education is for the specific objects. The goal of teaching is for educators to complete a certain stage in the process of education and teaching (a lesson, a unit, a term). At work, the educatee is expected to meet the requirements or result from a change.

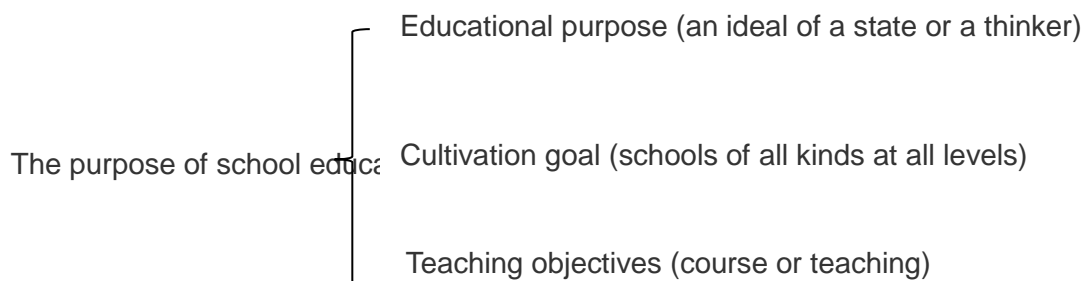


Figure 1 hierarchy of educational purposes

The classification of educational objectives is compared in terms of scope, time

and function. It includes three dimensions: the overall goal, the educational goal and the teaching goal. The overall goal is not to reach, to work for, or to become. The education goal aims at the overall goal, needs to decompose the overall goal into the more concrete education goal. Compared with the overall goal, it is more specific, but it is more general compared with the goal of teachers guiding the daily classroom teaching. Teaching objectives are more concrete than educational goals.

Table 2 relationships between overall objectives, educational objectives and teaching objectives

	Target level		
	Overall objectives	Educational objectives	Teaching objectives
Range	Extensive	Medium	Stenosis
Time required for study	One or many years	Weeks or months	Hours or days.
Purpose or function	Provide a vision	Design course	Preparation of teaching plan
Use example	Plan an annual course	Planning teaching unit	activities

2.2 Decomposition of Meteorological Education and training objectives

The famous American educationist and psychologist Garner in “Principles of instructional design” stated that: The fundamental reason for designing teaching is to

make it possible for a set of educational or training purposes to be achieved. The purpose of education and training is to help the society to play its functions and to learn from human activities. The purpose is the expected results of the education and training system. The difference between education and training is that the expected result of training is more purposeful and concrete, and the training organization which focuses on the development of skills has a wider purpose in its organizational context. The decomposition principle of Meteorological Education and training objectives one is that the targets need to be related to each other to the degree of complexity from simple to complex division; second, the latter goal is based on the previous goal; third, the principle of goal classification is not limited by age, teaching content and training object. Therefore, decomposition of the training objectives shall be made from the training scope, time, and function.

Educational objectives can also be divided into: Process or outcome goals, immediate goals or ultimate goals, etc. Process objectives refer to tasks that need to be completed within a specific time frame to determine whether the plan is effective and on time, but the process objectives do not show the effectiveness of the activity. The results show what students must be able to do or what they know after teaching. Immediate goal refers to the goal of teaching in school and evaluating the effect of teaching. The ultimate goal is a long-term goal beyond the control of the school. The

evaluation of meteorological education and training is considered from the perspective of the taxonomy of educational objectives. The teaching goal is the unity of the goal that the teacher wants to achieve through the teaching activity and the learner completes the learning goal through receiving the education, including the curriculum goal and classroom teaching goal two parts. Training objectives refer to the objectives and expected results of training activities. Development goals are the long-term impact and effectiveness of training projects on participants and organizations.

Table 3 Decomposition of training objectives

Training objectives decomposition	Target range	Time required	Purpose or function	Target characteristics	Target level	Application example
Development goals	Long term	End of training to long term	Provide a vision	Outcome goal, ultimate goal	Student development objectives organizational development goals	Meeting participants and organizational development
Training objectives	Medium	Length of training	Preparation of teaching plan	Result goal, immediate goal	Training targets	Training activities
Teaching objectives	Stenosis	Class hours	Design course	Process goal, immediate goal	Curriculum objectives	Teaching activities

					Classroom teaching objectives	
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2.3 Evaluation levels of meteorological education and training

Meteorological education and training activities are educational activities, and the evaluation should include the evaluation of teaching process, the evaluation of educational objectives (instant target) and the content of educational value evaluation. Meteorological education and training activities around the needs of the organization and job needs, evaluation purposes i to promote the training of teaching objectives, training objectives and trainees. The development of the organization objectives, evaluation of the time range is a long-term process. Teaching goal is a kind of process goal and immediate goal, including curriculum goal and classroom teaching goal, which take the class time as the unit, and take place in the course of training. Constructivist learning theory holds that teaching evaluation is actually the process of evaluating teachers' teaching and students' learning. The effective evaluation of this kind of integration of teaching and learning is used to understand students' progress and teaching quality. Therefore, the evaluation object of teaching process includes two levels: the quality of students' learning and the teaching quality from teachers. The purpose of teaching process evaluation is to find out the problems existing in teaching, to check, feedback and adjust the factors that affect the teaching quality and

improve the teaching quality. Therefore, the essence of teaching process evaluation is teaching quality evaluation and the purpose is to monitor the quality of teaching process implementation.

The training goal is the result goal and the immediate goal, the training goal completion takes the training time as the unit, represents the training result, namely aims at the training immediate effect appraisal. Development goals are a result goal and an ultimate goal, requiring a long-term process aimed at providing a vision for development. The presentation of educational value has to experience a long-term process. From the point of view of time, the exertion of educational value is immediate, transcendent and lagging, and is the result goal, immediate goal and ultimate goal. Education meets the requirements of the current educational goals, with immediate effect, but not limited to the goal, beyond the goal, and at the same time, this value play lags behind the educational process is to promote human growth and development. The scholars represented by Sculvin and House holds that the value evaluation of education is the result of educational activity and the result of educational activity.

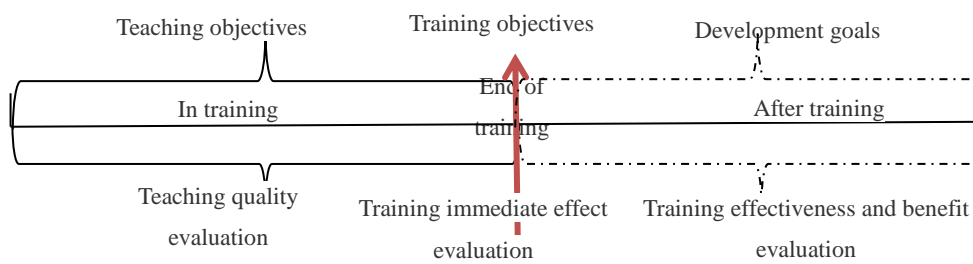


Figure 2 levels of training objectives and evaluations

Ci Hai interprets the benefit as the effective result of behavior. The meaning of the term "benefit" in the Chinese Dictionary is the effect and benefit. In some management literature, benefits are defined as beneficial effects. Generally speaking, the benefit emphasizes the result, and it is the effective result, or the result that can bring benefits to the main body. As to the economic benefit of education, Fan Xianzo and others holds that according to the difference of connotation and extension, whether the economic benefit of education can be measured by money, the economic benefit of education can be divided into economic benefit of education and non-economic benefit of education; It can be divided into direct economic benefit and indirect economic benefit according to the different object of action and divided into monetary benefits (monetary benefit) And non-monetary benefits(Non-monetary benefit) by the standard of money and so forth.

To sum up, according to the reality of training, the evaluation of meteorological education and training is divided into quality, effect (Instant effect) and Benefits (Containing the post effect) three parts. The evaluation of the teaching quality of meteorological education and training takes the class hours as the unit and the quality control of the teaching process as the direction; the immediate effect of training is based on the length of the training time and the realization of the training objectives. However benefits of training (containing the post effect) is based on the training value as the unit, the training value judgment as the direction, judgment training for meteorological development to provide intellectual assurance and achieve the degree of lifelong education and growth of people.

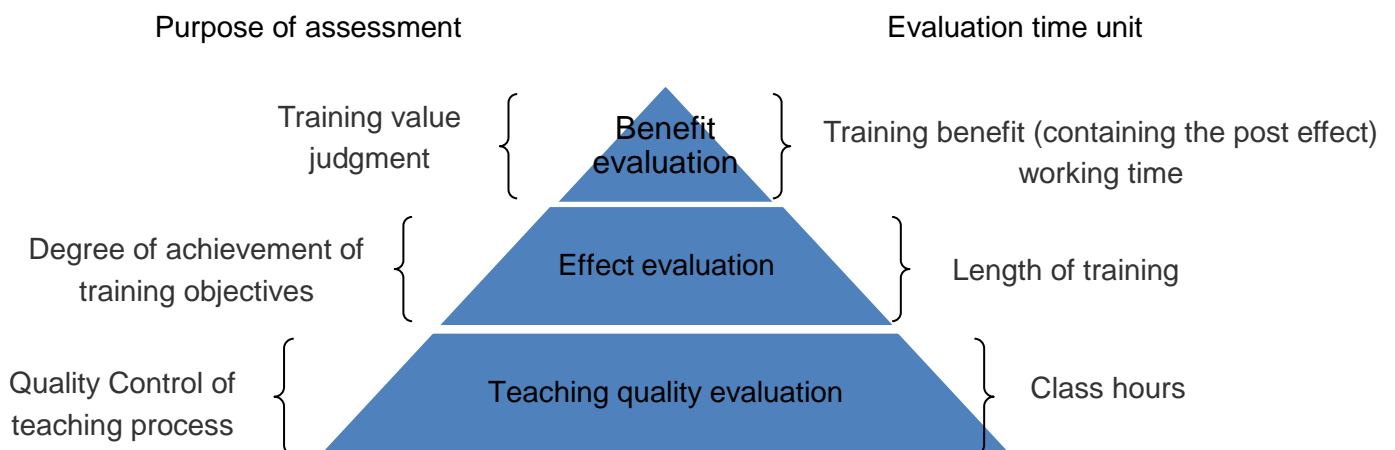


Fig. 3 theoretical model of meteorological education and training evaluation

The monitoring of teaching quality in school is actually based on the length of

training, so it contains two parts, the first is the evaluation of teaching quality; second, the evaluation of training effect. The purpose is to investigate the degree of achievement of teaching objectives through teaching quality assessment. Evaluation of the effectiveness of training (instant effect) verify the degree of achievement of training objectives. The preliminary formation of meteorological education and training evaluation theory was made based on the experience summary of the evaluation practice to absorb the pedagogy evaluation theory. This three-level evaluation model effectively overcomes the current situation of a single aspect of teaching process, training effect and training value. From the aspect of training timeliness and the purpose of evaluation, the evaluation is carried out in different layers, which is scientific.

III. Conclusion

This paper discusses the relationship among the evaluation of teaching quality, the evaluation of training effect and the evaluation of training benefit from the perspective of the classification theory of educational objectives. The evaluation model of quality, effect and benefit of meteorological education and training is put forward. Through this model, the quality control in school and the judgment of the value after training can be realized, which provide a reference for the evaluation of relevant continuing education and training institutions. Meanwhile, the evaluation index and evaluation method based on model should be further studied.

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